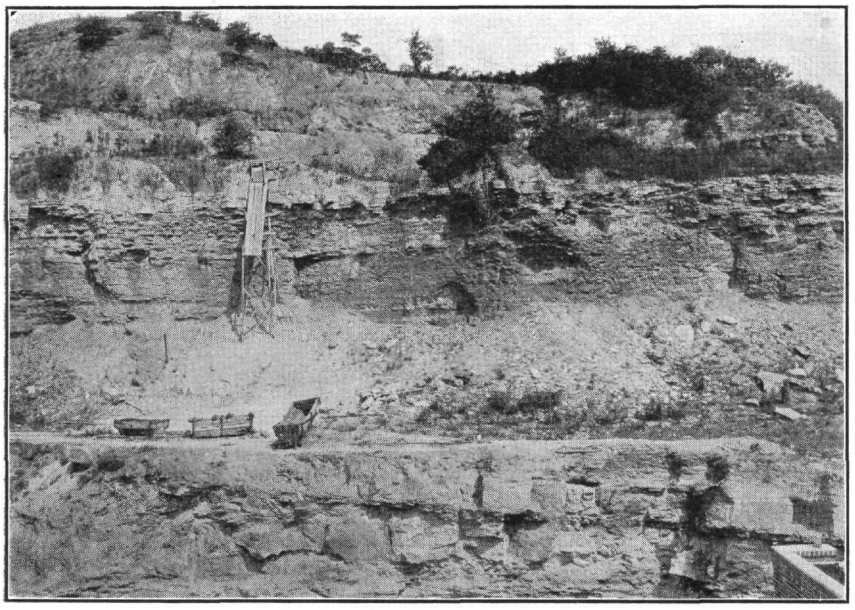


An Engineering Enterprise

ENGINEERING ABSTRACTS

WORLD'S HOTTEST FURNACE

Engineers recently witnessed at Trenton, N. J., a demonstration of the world's hottest furnace for practical commercial use. Within a chamber a cubic foot in size, it maintained electrically a temperature of 5,400 degrees Fahrenheit—comparatively equal to the tip of an oxy-acetylene blow torch. A temperature of 6,000 degrees was reached for short periods.

When dropped into the interior of the furnace pieces of wood puffed instantly into gas and disappeared in a flash of flame. Magnesium rocks were vaporized, burning with a dazzling white flame. Iron and graphite reacted violently together with a roaring blue and white flame.

Essentially the furnace is a graphite crucible enclosed in extremely effective heat insulation and surrounded by an electric coil carrying powerful high-frequentcy currents. These induce a corresponding current in the crucible itself and heat it to incandescence. At present the temperature is limited to that at which graphite vaporizes —more than 6,000 degrees. By enclosing the furnace under pressure in a cylinder or sphere, engineers believe even higher temperature may be attained.

—*Popular Science.*

THE STORY OF THE TYPEWRITER

IT REQUIRES no stretch of the imagination to picture the predicament in which modern business would be placed if it were suddenly deprived of the typewriter. It would suffer as great a set-back as it would if the telephone and the electric light were taken away. And yet, the typewriter had a long, hard pull in winning public approval.

The idea of a mechanical writing machine was first conceived in England as early as 1714 by an engineer named Henry Mill. The only tangible proof that remains of this first typewriter is an ancient and quaintly worded record paper in the files of the British Patent Office, dated January 7, 1714, granting to one Henry Mill the patent rights on the first artificial writing machine.

In 1829, after a lapse of over one hundred years, William A. Burt, of Detroit, inventor of the solar compass, undertook to perfect the idea. He was later granted a patent on a crude machine which attracted wide attention as a curiosity, but that was all.

Nothing outstanding was heard of a typewriter then until 1864, when a John Pratt built a mechanical writer called the "Petrotype." This is what led to the invention, by the Americans, of the first commercially successful typewriter.

In the fall of 1867 a machine made along original lines, which wrote quite rapidly and accurately, was completed by three American shopmen. They were able to continue their experiments by the aid of a loan from a well-to-do Connecticut business man, James Densmore. From a long list of names, that of "typewriter" was chosen as the most suitable.

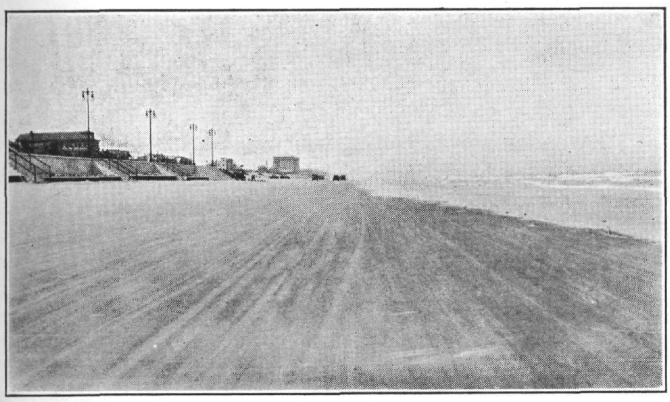
By 1873 the three inventors had perfected the appearance and workability of the machine to a salable point, and by the influence of Densmore were eventually able to persuade the Remington Arms Co. of Connecticut, to manufacture the machine on a commercial basis.

But still the machine was a long time in gaining public favor, mostly because of its price, and also because it was thought that only men could operate it. One of the inventors, however, dispelled this belief by teaching his sixteen-year-old daughter to become an expert typist. He thus proved that a woman could operate a typewriter and he lived to see the day of feminine stenographers.—*Lutheran Young Folks*, October, 1931.

THE CORROSION OF METALS

THE corrosion of metals goes back to prehistoric days and metal ages. Coins and ornaments of silver and gold have passed through many centuries with only the slightest sign of corrosion. In the bronze age the metals

contained in the bronze corroded gradually when exposed to water containing carbonic acid, but many of these articles are today in the museums. Iron, although stronger than the other metals, corrodes very readily upon exposure to water, and for this reason we have no relics of the early iron age. Today all steel in structures and tools is rapidly corroding. The corrosion of a metal means its chemical combination with oxygen or other non-metallic elements to form chemical compounds. Metals vary in their affinity for the various non-metallic elements. Gold had no affinity for oxygen; and, while silver, mercury, and platinum have very little, magnesium and calcium have very great attraction for it. The degree of affinity can be determined by the amount of heat given out during the combination. The tendency of corrosions of metals with non-metals which pass into solution can be measured electrically. Thus the metals can be arranged in order of their properties. These arrangements show the tendency for corrosion but not the actual corrodibility; thus aluminum has greater tendency toward combination than iron, but due to a covering of a film of oxide does not corrode as readily as iron.—*The Engineering Journal*, August, 1931.



DAYTONA BEACH IN FLORIDA

Lady (at country station): "Could you stop the express for me?"

Porter (exasperated): "We could, ma'am—or we could wire the last one to come back after you!"

—*Humorist.*